

The Role of Interior Design in Optimizing Living Space: A Case Study in Interior Arrangement and Lighting

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Abstract

Individual's behavior depends on the condition of living spaces and how comfortably he is spending time including activities or doing specified tasks in that atmosphere. Interior spaces are products of our architectural point of view and our imagination. In order to form these spaces, users need to familiarize themselves with their needs and make an effort to create a space to help them reflect their inner feeling. However, there are many other factors impact on the quality of these spaces including lighting and interior arrangement. Not only do artists pay attention to their living and work spaces and intend to change it accordingly by color, material and lighting, people would prefer to make the probable changes in interior spaces in different ways as they believe the interior can represent the whole building and it is strong enough to directly impact on people's behavior. The best and simplest way in order to see changes are to adjust the lighting and of course work on the interior arrangement. This article aims to discuss in what way users can change the aforementioned factors properly and increase the quality of their living spaces.

Introduction

Recently, more precise definitions are presented for architecture and mostly refer to interior design as a vital component of architecture. However many believe that interior design is not considered as a skill because ordinary people are able to arrange their own place according to their cultural, social and economic conditions. A proper architecture includes a type of interior spaces that attracts user's attention, correct his behavior and in reverse a bad architecture has disappointing interior design, make him feel uncomfortable. In addition, the more important matter is what does not have a space is not considered as architecture. It makes no difference if it is a space surrounded by walls or some invisible dividers including furniture, material or objects such as a fireplace form the space. So far, historical books in term of architecture is filled with some discussion having no connection with architecture and interior space, many pages, allocated to facades in a large-scale are related to sculpture and plastic art not architecture and interior spaces (Wood, 2003). Some scholars concluded that interior space should represent the inside of the building and provided the most for residents with comfort and peace while skeptical claim that there should be a continuous relation between outside and inside the building. As in some vernacular types of architecture, many residential places typically are arranged around a focal point. In some cases, although walls with many windows surrounded a room, a functional space is formed even different spaces are clustered and coherent and entrance to each is entailed a spatial organization (Eco, 1986).

Here, in this research, two important architectural features which are essential for forming a space are discussed. At first, lighting and its influences on people's behavior and then interior space and its role for providing a livable and more importantly helping residents feel comfortable and relaxed (Eisenman, 1987). It may be claimed that lighting is expensive and needs technical support and interior space is more luxurious rather than architectural, but both can be accomplished by simple adjustment in the house and result well.

Lighting

Lighting combines art and science and it makes a bridge between artist, users and technicians. Light is an essential element for forming the built environment and can influence on the aesthetics. Although, many believe that light is interlocked with industry and innovations in science and it would prevent the artistic creativities, light is a key tool determined by artists. Most probably, nothing can be replaced by art when it comes to psychological effects. A proper lighting can help residents feel relaxed and each room according to its function benefits from a specific type of lighting. Obviously, a suitable coloring and lighting can be positive for kids' room as improper combination may cause consequences such as aggression or extreme fatigue. Additionally, people themselves can control and change the lighting and results improvement in their health, safety and efficiency in living spaces. It should be mentioned that there are some important factors such as economy and the function of space influence on interior spaces as well.

	
<p>Figure 1: Lighting in traditional houses (URL 1)</p>	<p>Figure 2: Lighting in religious places, Sheikh Lotfallah mosque Iran (URL 2)</p>

In the history of architecture, in order to supply the favorable source of energy, it is possible to utilize glare materials. Therefore, the reflection of surfaces produces more lighting or if the amount of lighting in reverse proportion, it has more dramatic influence. Marble and stones in that category are semi-transparent material, and if they are more smooth and reflect part of light, they can absorb or let radiation pass. Nowadays, glass is counted as a fragile and thin layer, also, is an independent and flexible volume which can play an architecture role in the space. Lighting is in relation with proper choosing of materials as well. In some old examples and applied solution by locals (Figure 1 and 2), lighting has a different definition while in the first one it is introduced as a calm and relaxing elements, in the second one it has another function and give spiritual feature to the place.

The contradiction between some materials such as glass and concrete can be interpreted as lighting and darkness and lack of lighting and materials such as membrane shells that pass part of lighting can change even the function of the place. In physical point of view, material and lighting produce a weightless space with respect to the amount of usage and types. The type of material and their combination with other components can be ideal for interior space.

Light can attribute clarity to the present structure and if user perceives the structure, he would be able to understand the relationship of space components better, light can make the linear and central structure more powerful. For instance, the lighting at the end of a dark corridor is a tool to emphasis on the path of movement as a line such as sparkling window on back of altar.



Figure 3: Lighting in Bazar



Figure 4: skylight in old houses

Spreading light in Chahar Sog with a hole on ceiling does not attract attention just for seeing top. Also, it urges visitors to pay more attention on the path (Figure 3 and 4).

To add more, in interior space, the covering of a dome against the lighting by shinning from sky creates chiaroscuro and contains a very slight change in tonalities that help users recognize the shape itself and other characteristics such as material will be perceived in next phases. Lighting is able to give more dimensions to the space. In general, interior places, filled by a ambient and flat lighting is very neutral. In an absolute darkness, there are no spatial principles and despite of that, space, filled with chiaroscuro, is abundant with visual forces.

Psychological effects of light on users in interior space

According to the table below, human being reacts differently in diverse lighting conditions.

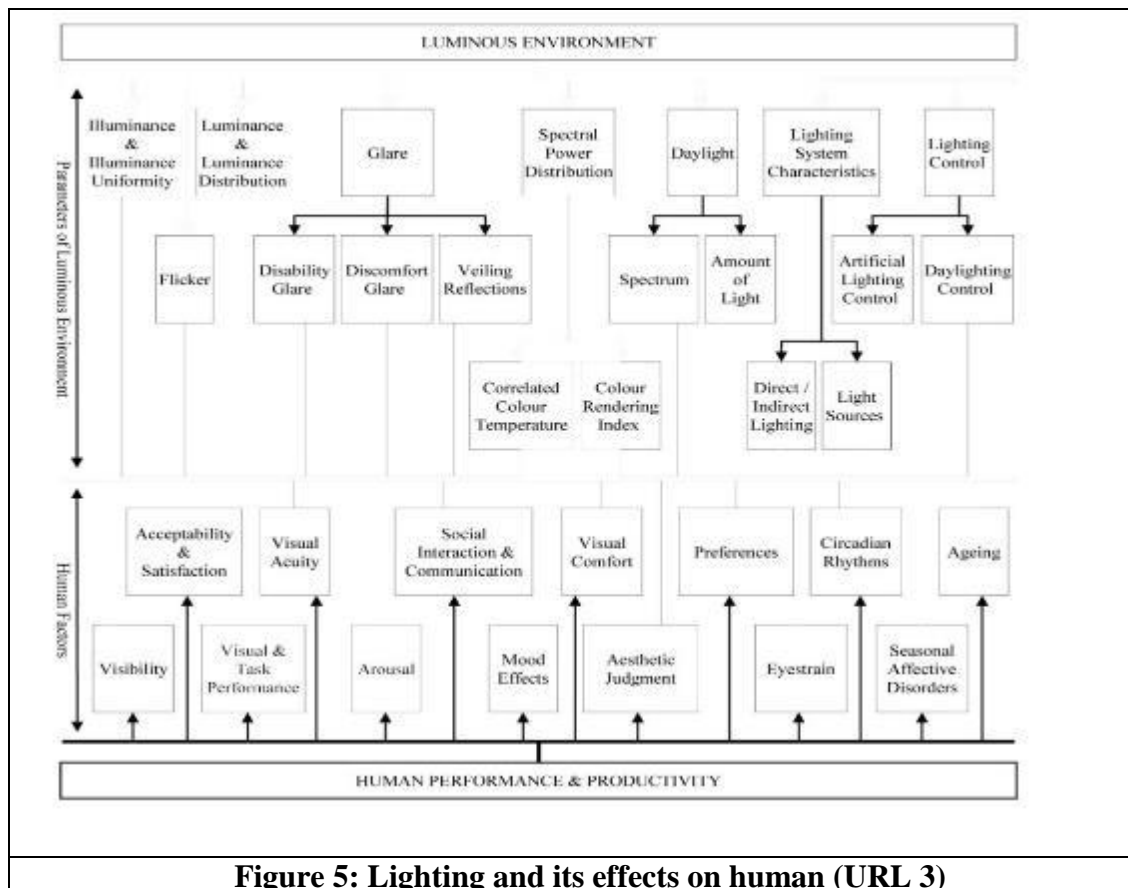


Figure 5: Lighting and its effects on human (URL 3)

A user can perceive a variety of lightings such as natural and artificial lighting sources.

But, a lighting source does not impact on users by itself because a reflection of surfaces can change the lighting in atmosphere as well. It is rarely calculated the combination of lighting and reflection in interior space and therefore, it results improper luminous in the space. For instance, a pink wall with the ambience lighting during a day would impact differently with the same condition at nights with direct lighting source.

Above, it is clear that users in different lighting conditions have diverse reactions and productivities.

Interior arrangement

Many people, established in a new place have many complaints about the arrangement in different spaces and usually unfamiliarity is their first feeling after settling down. It seems at first easy and enjoyable to arrange many objects in different spaces but after a while it is replaced with a dominant disappointment as, many changes may happen in a short period of time and do not meet users' satisfaction. It becomes worse if new pieces of furniture or objects add to the space, then people sometimes can accommodate new objects in a constricted space hard and are not aware of changing the spatial organization unwontedly. In addition, unwise changes even in spacious area can make them look smaller. Scholars explain that users can feel convenient if visually and aesthetically are pleased by creative arrangements. In some school of thoughts such as Feng-shui, there are various instructions that help users (residents) arrange the furniture according to specific rules (Figure 6) but other designers also may benefit themselves from useful and proper guidelines to arrange interior spaces regardless any belief.

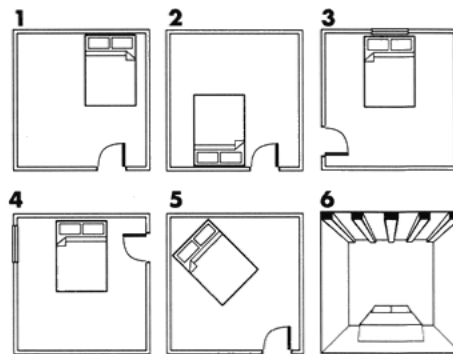


Figure 6: Arrangement bed based in feng shui (URL 4)

As figure (6) depicts:

- The foot of your bed should not face the door. Qi's flow will disrupt your sleep.
- For the same reason your bed should not be placed on the same wall as the door.
- Your bed should not be positioned under a window. The wind and rain will prevent a peaceful rest.
 - Your bed should not be positioned between a doorway and window, or a combination thereof. The wind tunnel will cause a disturbance.
- Your bed should not be placed on an angle.
- You should not sleep under ceiling beams.

The placement of variety of objects including furniture is challenging and designers should consider a variety of aesthetical and visual criteria and simultaneously think functional (Lyons, 2008). Each room in the house is exclusively used for a purpose although there are exceptions as well, in a living room, the furniture should support the conversation and should provide for residents

with a space that help them feel relaxed and comfortable (Marcoci , 2005) Below, a user based on doing some moderations in his own place have different feeling. Surprisingly, most of them are correspondent with simple rules in interior design and it proves that how tine changes can be influential to change users' mood.




		
<p>In a good arrangement, furniture is in room's perimeter and it invites people while in right composition, the arrangement is great and is more intimate. Moreover, it provides a good atmosphere for conversation; the angles of chairs are also inviting people as the focal point is the fireplace.</p>	<p>Arranging furniture in office would be tricky and user may perceive that there are not many choices, in a good composition on right side shows plenty of spaces and not crowded composition, it seems to be balanced and area around window left empty while looking at left side, desk positioned to see outside. Studies show that work is improved if there is a chance to see outside. Chairs are arranged to increase conversation.</p>	<p>User claims that putting bed against wall make the room looks messy while in the center space seems cleaner.</p>

Figure 7. Small moderation in interior space and its psychological effect

Practically, sometimes furniture placement is done by residents themselves regardless their capability and having information about interior designing. Common problems, made by residents are minor problems which can be avoided easily. For instance, you can find some common problems in decorating and arranging the furniture:

Ignoring the Foyer

Some people look at foyer as a useless space but, in fact, it can present the house and tell visitors about whom the owner is. Furthermore, a narrow foyer without focal point can cause visitor prejudices the place and residents feel anxious. Correcting a foyer does not necessarily mean a big area but it can be define by some simple objects or even coloring (Krauss, 1996).

Out-of-place themes

Just following the main stream in decorating cannot lead up to a satisfactory point, awkward objects and pale colors next to shinning ones can cause residents not to tolerate the space for a long time. However, there are many guidelines for interior designs and furniture arrangement, it should be noticed that all pieces of furniture should be connected to each other in such a way to form a coherent chain; of course users can move them accordingly (figure 8)

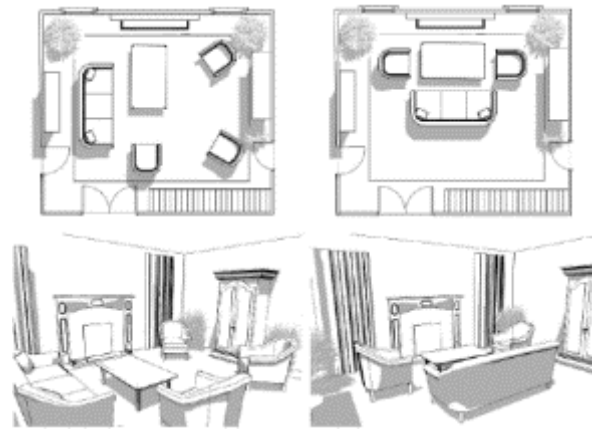


Figure 8: A real-world furniture layout before (left) and after (right) professional rearrangement (reproduced from [Ward 1999]). On the left, people need to raise their voice to have a conversation when everybody is seated. On the right, conversations are more comfortable and the room has a visual anchor, the fireplace (URL 5)

The main goal for designing an interior space is to create a good sense of living in that space however many would think that aesthetical purposes are given the preferences. Therefore as it emphasized on the social feature of users, prepare a space for increasing the social relationship between the residents with themselves and visitors are prior to other goals. Below, some ways which can increase the social skills are observed:

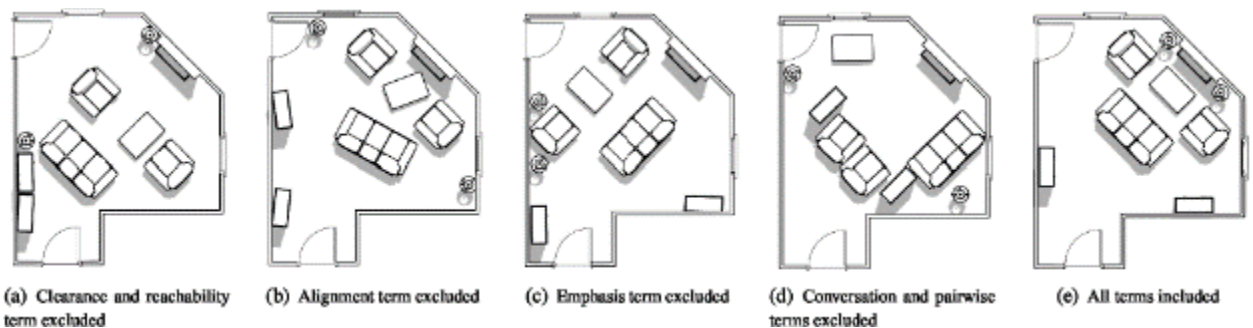


Figure 9: The importance of individual terms in the density function. Lowest-cost samples produced by the sampler when individual cost terms are excluded (a,b,c,d) and when all terms are included (URL 5)

Clearance and accessibility

Placement should be set in such a way that residents can maneuver easily and face no obstacle, it could be very useful in emergencies and moreover they do not feel restricted.

Alignment

Due to aesthetics and visual purposes, all objects should be aligned with each other. Psychologically, residents can't tolerate unaligned compositions as it can give a false impression.

Emphasis

Focal point and emphasis can help the spatial arrangement by creating invisible focal points (Merrick, 2005). Users imagine some focal points in each space and even form their imaginative circulation around.

Conversation

As man is a social creature, a space especially in residential places should be in such a way that he can easily have conversation with others, surprisingly, nowadays, nowadays instead of preparing a proper space for man to evolve and progress, privacy replaces important characteristics.

Site planning for interior spaces

The plan of an interior space shows the way the rooms are arranged and how the spaces within the house are used based on interior design rules. But, in order to achieve this purpose, the main activities in the house are introduced. Five basic types of activities that each requires certain types of spaces include as follows:

Social—involve people from outside the family, meaning that in interior spaces only residents are not considered also their relationship with others should be incorporated in interior design.

Family—involve family members, meaning that each member of family has an intimate and very close relation with other members and site planning should be conducted in such a way not only does it maintain. Also enhance the mentioned relationship (**Gutting, 2005**).

Individual—involve only one person, meaning each person regardless his privacy should be calculated in site planning for his circulation.

Private—require visual & audio privacy, meaning allocating some spaces that help him enjoy his privacy.

Work—accomplish a specific task, meaning a place usually common space that members of family do a specific task.

Further, activities are used to divide the home into 3 zones:

Public zone

Where social & family activities occur (LR, DR, Entrance & Power); non-family members are allowed

Work zone

Where work activities that support the household's lifestyle occur (Kitchen, Laundry & Home Office)

Private zone

Where individual and private activities occur (Bedrooms & Bathrooms)

All 3 zones should be represented in a floor plan and should not be split. Household members should not have to cross through the middle of one zone to get to another. Buffers can separate zones into walls, doors, closets, room dividers, and large scale furniture and they can also be placed on different levels.

Circulation

The most important feature in interior space is the path of movement and circulation. This vital characteristic is true in all spaces regardless their sizes. But, what should be seen for having a proper circulation are as follows:

- Avoid going through middle of rooms
- Don not interfere with good furniture arrangement nor interrupt activities
- Do not interfere with private zone
- Do not go through kitchen work area
- Easy access from kitchen to rest of house
- Direct access from entrance to clean-up area
- Short paths to conserve human energy

Orientation

Many designers believe that ascribing characteristics to interior space would not work unless the orientation and site planning were paid enough attention. Because many interior changes must comply with environmental factors such as lighting and building orientation, they can be very effective.

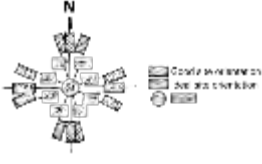
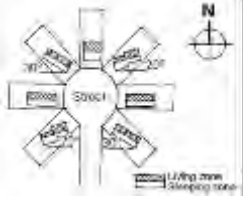

		
Orientation does not have to be precise: there is a degree of flexibility	Orientation possibilities on a cul-de-sac	Daytime living areas shown shaded.

Figure 10: Orientation in site planning regarding the interior space (URL 6)

- The way a housing unit is situated on the lot
- Affects space plan's efficiency & arrangement
- East-west orientation is best
- Passive solar heating in winter + snow on driveway melts quicker
- Position windows to take advantage of cross breezes
- Landscaping to buffer winter winds & provide shade in summer

Conclusion

Set design, painted and drawn architecture are not architecture, they are to some extent a poem that are not formed systematically and just are outlines. In other words, user cannot experience the space if he can not feel convenient inside. A space not only accommodates him, but it can also help him react perfection and psychologically feel relaxed and prepare himself for at first daily challenges and next spiritual goals. Here, a big misunderstanding may occurs and describing an architectural space seems to be grotesque and sometimes funny. Below some tips are helpful. A spatial experience inside the residential place should be connected to the same experience in the city. Space is beginning and ending of the architecture; therefore, in order to interpret the building, architectural components such as elevations as a tool for judging the architecture would be enough. A spatial experience in urban spaces is continuing, and it has been extended in streets, squares, stadiums and anywhere, as there is something built by man and creates a confined space. If space is restricted to surface such as floor, ceiling and four walls inside the building, it does not necessarily mean a space is created but space is formed through function and a direct contact with user.

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